

Evaluative subjunctive and nonveridicality

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1 Introduction: the landscape of subjunctive

The study of grammatical mood has a long tradition in philology and linguistic semantics. Typologically, we find morphological distinctions such as *indicative*, *subjunctive*, *optative*, *imperative*. Focussing on the subjunctive versus indicative contrast, traditional grammars typically identify the indicative with *realis* and the subjunctive with *irrealis*, and describe the contrast in terms of selection. Observe the basic contrast with attention to French:

- (1) a Marc **sait** que le printemps **est/** ***soit** arrivé.
 Marc knows that the spring be-IND-3SG/ be-SBJV.3SG arrived
 ‘Marc knows that spring has arrived.’
- b. Marc **veut** que le printemps **soit/** ***est** long.
 Marc wants that the spring be-SBJV-3SG / be-IND-3SG long
 ‘Marc wants spring to be long.’

c. Le printemps **est/** ***soit** arrivé.

The spring be-IND-3SG / be-SUBJ-3SG arrived

‘The spring has arrived.’

The verb *savoir* ‘know’ in (1a) is said to *select* the indicative, but the volitional verb *vouloir* ‘want’ in (1b) selects the subjunctive. At the same time, the indicative is the default mood of unembedded declaratives, as in (1c). In both unembedded clauses and in the complements of *know* meaning verbs, the indicative refers to a true event; hence the characterization *realis*. The complement of a *desire*-verb, on the other hand, merely expresses a desire and the content of a desire is not a fact (hence, *irrealis*). This is a typical pattern, and in strict selection, the indicative and subjunctive are in complementary distribution: one mood excludes the other, as seen above.

Though the indicative-subjunctive pattern has been most extensively described in Indo-European languages, it is by no means restricted to these, and it appears in many of the world’s languages, including native American languages (see a recent article by Matthewson 2010 for Salish, and Wiltschko this volume). The contrast between subjunctive and indicative also correlates with evidentiality, especially in languages that have only one, indirect, evidential morpheme (Murray to appear, Smirnova 2013). In this case, the indirect evidential is used when the speaker has reduced commitment to the truth of the sentence, therefore the indirect evidential form appears to be parallel to the subjunctive. I will not discuss indirect evidentials in this paper, but the framework I will establish, in particular the category of *epistemic* subjunctive is very relevant for the indirect evidential.

When we look at the subjunctive vs. indicative, we observe two patterns: (a) one that involves *selection* as above by particular classes of verbs and other elements (e.g. sentential connectives such as those meaning *without, before*), and (b) cases where the speaker has a

choice between indicative and subjunctive. In this paper, I am going to study cases that fall under (b). My goal is to show that while selection manifests sensitivity of the subjunctive to the logical property of nonveridicality, the optional cases reveal a major function of the subjunctive itself to create nonveridical modal spaces. Most of the optional subjunctives I discuss here are translated in English with possibility modals in English, or similar modal particles in Dutch and German.

My main language of illustration will be (Modern) Greek. Unlike French and other Romance languages, and in contrast to Ancient Greek, the mood contrast in contemporary Greek is manifested not as verbal morphology, but in the form of particles. This pattern is observed also in Balkan (Slavic) languages and Romanian (Farkas 1985, Rivero, 1994, Terzi, 1992, Giannakidou 1998, 2009, Roussou, 2000, Bulatovic 2008, Todorovic 2012, among others). The subjunctive particle is *na* which precedes the tensed verb. The indicative is unmarked in main clauses, i.e. past tenses (simple past, imperfective past, perfect tenses) and the present are ‘indicative’. (One cannot fail to note the parallel with the ‘direct’ evidential which is typically an unmarked past or present too). In embedded clauses, the indicative particles *oti*, *pu* are used as complementizers.

The *na* clause, contains the so-called verbal dependent (Holton et al. 1997) form ‘perfective nonpast’:

- (2) Thelo **na** kerdisi o Janis.
want.1sg SBJV win-PRF-NONPST-3SG the John
‘I want John to win.’
- (3) O Pavlos kseri **oti** efije i Roxani.
the Paul knows-3SG that-IND left-3SG the Roxani
‘Paul knows that Roxanne left.’

- (4) Efije/ Fevgi/ *fiji i Ariadne.
left.3SG/leave-IPFV-NONPST-3SG/PRF-PST-3SG the Ariadne
‘Ariadne left.’
‘Ariadne is leaving.’

The complement sentence in (2) is in the subjunctive mood, signalled by *na*. The verbal form used is glossed as ‘perfective nonpast’. It is a form that cannot occur without *na*, as we see in (4). This form designates future orientation, occurring also with the future particle *tha* (Giannakidou 2009, 2012, Giannakidou and Mari 2014, this volume). We will not discuss the properties of this form here, but focus instead on the choice of particle.

Greek posses another mood particle, e.g. *as* for optative mood, which is used in main clauses only. *Na* also has this use:

- (5) As fiji/ efevge o Janis!
OPT leave-PERF-NONPST-3SG/ left-IMPRF-3SG the John
‘Let John leave!’
‘I wish John had left!’
- (6) Na fiji o Janis!
SUBJV leave-PRF-NONPST-3SG the John
‘Let John leave!’
‘John, leave!’

The use of *as* is reminiscent of *if only* optatives with past (see Grosz 2012 for discussion). In main clauses, then, only the non-indicative is marked; the indicative is the absence of mood particles. This correlates, as I said earlier, with the use of the so-called ‘indirect’ evidential

marking in Turkish, Bulgarian, or Cheyenne, where the absence of indirect evidential correlates with the unmarked ‘direct evidential’ form.

With emotive verbs, Greek uses the indicative complementizer *pu*:

- (7) O Pavlos lipate {pu/*oti} efije i Roxani.
the Paul is-sad-3SG that left-3SG the Roxani
‘Paul regrets that Roxanne left.’

Pu marks the complement formally as distinct from *oti*. *Pu* follows *emotive* verbs *lipame*, *metaniono* ‘regret’, *xerome* ‘be-glad’ (cf. Christidis, 1981; Varlokosta, 1994), which are claimed to be factive; however, epistemic factive verbs such as *ksero* ‘know’ select the indicative, as we saw in (1). *We* will say more on *pu* later in the paper. Importantly, in many Romance languages, e.g. in Spanish and Italian, the emotive verb requires subjunctive (example from Villalta 2008: 470):

- (8) Marcela se alegra de que la hayan invitado.
Marcela SE glad-3SG of that her have-PST-SUBJIV-3PL invited.
‘Marcela is glad that they invited her.’

As Quer 2001, 2009, Marques 2004, 2010, and Ambar (this volume) lucidly discuss, the use of the subjunctive after emotive verbs in Romance is subject to considerable variation, with some languages being stricter (Spanish, Italian), others allowing both subjunctive and indicative (Catalan, French, Portuguese), and Romanian using the indicative, like Greek. When we consider the subjunctive after emotive verbs within Romance, therefore, it seems reasonable to understand it as a case of ‘variable’ subjunctive, and not strict selection.

Regarding strict selection, and putting emotive verbs aside, the main Greek patterns are pretty much the ones we find in Romance languages, and they are as follows:

(9) *Indicative verbs*

assertives: leo ‘say’, dhiavazo ‘read’, isxirizome ‘claim’

fiction verbs: onirevome ‘to dream’, fandazome ‘imagine’

epistemics: pistevo ‘believe’, nomizo ‘think’.¹

factive verbs: xerome ‘be glad’, gnorizo ‘know’, metaniono ‘regret’

Thus in terms of mood, complements of belief and fiction verbs behave like unembedded assertions and complements of knowledge verbs: they select indicative:

- (10) O Nicholas onireftike/ nomize **oti/*na** efije i Ariadne.
the Nicholas dreamt-3SG /thought-3SG that-IND left-3SG the Ariadne
‘Nicholas dreamt/thought that Ariadne left.’

This pattern is challenging if we believe that the indicative implies ‘truth in the actual world’, because complements of belief, fiction, and assertive verbs are not true in this sense. Of the indicative complements, only complements of *know* refer to facts (Karttunen 1971, Kiparsky and Kiparsky 1970). But the grammar of mood selection appears to make no distinction between *actual* events and *imagined* or *believed* facts.

Verbs selecting subjunctive belong to the following classes:

(11) *Subjunctive verbs*

¹ In Italian (Giorgi and Pianesi 1997, Portner 1992, Mari 2015), belief verbs can take indicative *or* subjunctive. In Portuguese the subjunctive can optionally be triggered too, and the choice correlates with the ‘degree of commitment’ (Marques 2010).

<i>volitionals:</i>	thelo ‘want’, elpizo ‘hope’, skopevo ‘plan’
<i>directives:</i>	dhiatazo ‘order’, simvulevo ‘advise’, protino ‘suggest’
<i>modal verbs:</i>	prepi ‘must’, bori ‘may’
<i>permissives:</i>	epitrepo ‘allow’; apagorevo ‘forbid’
<i>negative:</i>	apofevgho ‘avoid’, arnume ‘refuse’

Some of these verbs contain a volitional component, but not all of them do, e.g. modal verbs in both epistemic and dynamic uses select the subjunctive (and this holds for Greek as well as Romance languages).

Selection patterns we observe also with adjuncts. Nonveridical adjuncts such as *prin* ‘before’ and *xoris* ‘without’ select *na*, but *meta* ‘after’ selects the indicative:

(12) a **Prin** na kimithi, epline ta dontia tu.
 before SUBJV sleep-PRF-NONPST-3SG washed-3SG the teeth his
 ‘Before sleeping, he washed his teeth.’

b *Prin kimithike, epline ta dontia tu.
 before sleep-PRF-PST-3SG wash-PRF-PST-3SG the teeth his

(13) a ***Afu** na kimithi, figame.
 after SUBJV sleep-PRF-NONPST-3SG left-PRF-PST-3SG

b Afu kimithike, figame.
 ‘After he slept we left.’

(14) a Ekane ti metafrasi xoris **na** xrisimopiisi lexiko.
 Did-3SG the translation without SUBJV use-PRF-NONPST-3SG dictionary
 ‘He did the translation without using a dictionary.’

b	* Ekane ti metafrasi	xoris	<u>xrisimopiise</u>	lexiko.
	Did.3SG the translation	without	use-PRF-PST-3SG	dictionary

The use of the subjunctive with ‘without’ and ‘before’ challenges the idea that subjunctive is dependent on preference of contextual alternatives (Villalta 2008). There is no preferential component in these connectives (and see Giannakidou and Xherija in progr. for more discussion with data from Greek and Albanian subjunctive).

In selection, the subjunctive itself does not appear to add to the semantics, and it is generally accepted that it reflects syntactic dependency (see e.g. Ambar this volume and earlier references). But there are cases where a speaker chooses the subjunctive, outside these selection contexts, to produce a semantic effect. In this case, the subjunctive does have semantic contribution. A famous case of such optional subjunctive is the subjunctive in relative clauses, and I summarize below some more well known cases:

(15) *Optional subjunctive: subjunctive adds to the meaning*

- (i) ‘Polarity’ subjunctive, after negation of an otherwise indicative selecting verb (Quer 1998, 2001, 2009 for overview)
- (ii) In relative clauses to convey uncertainty of existence (see Farkas 1985, Quer 1998, Giannakidou 1998, 2013a for recent discussion)
- (iii) In free relatives, adding the dimension of free choice (Quer 1998, 2001, Marques 2010, Giannakidou and Cheng 2006)
- (iv) With modal adverbs of possibility (Giannakidou 2009)
- (v) In questions, producing epistemic meaning
- (vi) With first person belief, with a change of meaning
- (vii) With verbs compatible with both moods such as *elpizo* ‘hope’ (dual ‘selection’)

In the present paper, we will study the last three cases which have not been studied in depth before. Let me give an initial taste of the data. Consider first the subjunctive in questions:

(16) Ti **na** theli?

What SUBJV want-3SG

‘What *might* he want?’

(17) Na tou arese to fagito?

SUBJV he-GEN liked-3SG the food

‘*Might* it be the case that he liked the food?’

Such data were first mentioned in Rouchota 1994, who called them *dubitative*. As indicated, the *na*-version behaves as if it contains a possibility epistemic modal *might*. Similar use of the subjunctive exists in Statimcets (Matthewson 2010). Importantly, these questions are ‘weaker’ than without the subjunctive, as expected if the subjunctive is a possibility modal, which is what I will argue for here.

Consider now the subjunctive with first person belief:

(18) Pistevo na kerdisi o Janis.

Believe-1SG that-SUBJ win-PRF-NONPST-3SG the John

‘I *hope* John to win.’

(19) Pistevo oti tha kerdisi o Janis.

Believe-1SG that-IND FUT win-PRF-NONPST-3SG the John

‘I believe that John will win.’

With the subjunctive, we observe a change in the meaning of the verb: *pistevo* is not interpreted as a verb of belief, but as ‘hope’— as can be seen in the comparison with the canonical selected indicative.

A related phenomenon is the dual mood pattern, e.g. with the verb ‘elpizo’ hope:

(20) Elpizo na kerdisi/kerdise o Janis.
Hope-1 SG SUBJ win-PRF-NONPST/NONPST-3SG the John
‘I hope for John to win/to have won.’

(21) Elpizo oti kerdise o Janis.
Hope-1SG that-IND won-3SG the John
‘I hope that John won.’

Equivalents to *hope* are also flexible in other languages (see e.g. a recent discussion of French *hope* in Portner and Rubenstein 2012). These cases of ‘relaxed’ mood alternation also suggest a meaning for the subjunctive, and will be further discussed in sections 5 and 6.

Before I proceed to the specifics of the analysis, and given the topic of this volume, I wanted to offer some brief typological remarks on the general picture. It has been observed that the subjunctive hard to unify as a notional category. For instance, we read that:

“Thus the selection of indicative or subjunctive for complement clauses in Portuguese seems to follow from two factors: *nonveridicality and epistemic modality*. The indicative is selected for veridical contexts, or if the attitude towards the complement proposition is of epistemic nature. *The subjunctive is selected otherwise*. It does not seem to be associated with a specific kind of modality.”

(Marques 2010, p. 153)

I agree that it is impossible to unify the subjunctive with one modality, and a similar

conclusion is drawn in Witschko, this volume. The subjunctive cannot be simply identified with a single label ‘epistemic modality’, or ‘bouletic modality’ since it is used with both epistemic and dynamic modals; and the fact that the optional subjunctive has a semantic effect, but the selected one doesn’t, adds to the complexity. The semantic effect sometimes is epistemic, as we saw in the questions (also with relative clauses; Giannakidou 2014), but it can also be bouletic (as with subjunctive belief that we just saw). It seems impossible, thus, to say that the subjunctive itself associates with one modality—because it doesn’t.

Hence, if we are in the search for the holy grail of *one* modality for the subjunctive, we are not in luck. But if we look closer, we see that there is indeed one underlying property shared by *all* subjunctive contexts: they are all nonveridical. As I discuss immediately in the next section, nonveridical domains are sets of worlds partitioned into *p* and *non-p* worlds, and the partition could (but doesn’t have to) be the result of ordering (e.g. ordering sources with modals). And, though not all subjunctive contexts can be identified with an ordering, they are all nevertheless partitioned into *p* and *non-p* spaces. And the subjunctive, when it has meaning, induces an *evaluation* which is in all cases, the creation of a nonveridical space.

I will propose that there are three kinds of evaluation. The first is epistemic, Epistemic subjunctive is akin to a possibility modal, as we saw in questions. Second, we have *emotive* subjunctive, which, I argue, imposes nonveridical partitioning between *p* and *non-p* worlds as a presupposition. Thirdly, we have the evaluation observed with first person belief, verbs meaning *hope*, and in this case the subjunctive gives a preference ordering between *p* and *non-p* worlds. Finally, I discuss the Greek emotive complementizer *pu*, and argue that it carries a negative expressive index (Potts 2007, Giannakidou and Yoon 2011).

The article proceeds as follows. In section 2, I introduce the concepts of veridicality, and nonveridicality as partitioning of the modal space. In section 3, I discuss selection to illustrate the role of nonveridicality. In section 4, we study the epistemic subjunctive; in

section 5 we examine the emotive subjunctive, and the expressive complementizer *pu*. In section 6, we discuss dual mood patterns.

2 Veridicality and Nonveridicality

Here I present and define the main notions of veridicality and nonveridicality, and the way they relate to modality and mood with the framework I developed since Giannakidou 1994 (also: Giannakidou 1997, 1998, 1999). In the present paper, I rely more on Giannakidou 2013, 2014); Giannakidou and Mari (this volume) discuss nonveridicality in relevance to the future and epistemic modality, and I use some of these observations in section 4.

Montague 1969 uses ‘veridicality’ to characterize sentences with perception verbs such as *see* (see Giannakidou 2013a for a formal connection between truth and existence, especially as it reveals itself in relative clauses and with progressives). Authors have also used other labels, e.g. *factivity*, *factuality* to refer to what I call next *objective* veridicality (Karttunen 1971, Kiparsky and Kiparsky 1970, Egré 2008), as well as actuality (Bhatt 2006, Hacquard 2010).

In my own work (see also Zwarts 1995, Beaver and Frazee 2011), veridicality is a property of expressions that entail the truth of their complement sentence:

(22) Def 1. *Objective veridicality*. (based on Zwarts 1995, Giannakidou 1997, 1998, 1999).

Let F be a monadic sentential operator. The following statements hold:

- (i) F is veridical just in case $Fp \rightarrow p$ is logically valid; otherwise F is nonveridical.
- (ii) A nonveridical F is antiveridical iff $Fp \rightarrow \neg p$.

Functions that have veridicality and nonveridicality are propositional functions (see Bernardi 2001 for type-flexible definitions). F is veridical iff Fp entails p , i.e. if whenever Fp is true, p is true too. F is nonveridical if Fp does not entail p , i.e. if when Fp is true, p may or may not be true. Note that nonveridical operators do not entail the falsity of p ; this is a property of *anti-veridical* operators, as indicated in (ii); antiveridical operators are a subset of nonveridical ones.

Nonveridicality under this definition is *objective*, because it does not make reference to parameters other than the propositions and the functions. There are no subjective parameters such as what individuals think or believe, but these will be needed for the treatment of modality and mood (see below). For now, consider that if a verb such as *know* is our function F , *know p* entails p , *know* is therefore veridical; but if *want* is the F , *want p* does not entail p , therefore *want* is non-veridical. Hence, the basic mood opposition can be readily described in terms of objective veridicality. However, we do have to explain why ‘believe’ and ‘dream’ meanings select the indicative.

I will go not right to the characterization of modal verbs as nonveridical. Giannakidou, and Beaver and Frazee 2011 present nonveridicality as a defining property of the category modality. Consider:

(23) Nicholas might/must bring dessert.

(24) Nicholas might/must have brought dessert.

Logically, *possibly p* does not entail p ; and *must* is also nonveridical, since *must p* does not entail that p either. *Must* does not validate the veridicality principle T that holds knowledge and aleithic modality (see Giannakidou 1998, 1999, and discussion in Giannakidou and Mari this volume, also Portner 2009 on the weakness of *must*). As de Marneffe et al. 2012 put it:

‘declaratives like *Ariadne left* convey firm speaker commitment, whereas qualified variants with modal verbs or embedded sentences imbue the sentence with uncertainty’ (deMarneffe 2012, p. 102). Similarly, Trnavač and Taboada 2012 use modals as nonveridical markers of uncertainty.

Veridicality and nonveridicality are often also discussed in the context of *commitment*. The speaker is said to be "fully committed" to the truth of an unmodalized sentence, but is not fully committed in the case of a modal sentence. Smirnova 2012, 2013 uses ‘epistemic commitment’ as her criterion for mood choice and evidentiality. In my earlier work, I argued that a fully committed speaker is in a veridical epistemic state which is a state with only worlds where the proposition is true. Thus, when we talk about the truth of a sentence, we talk about it in two ways: objectively, by appealing to what is the case in the actual world, and subjectively by appealing to commitment that individuals have to the truth of the sentence.

The connection between veridicality and speaker commitment, I suggested, can be captured by making veridicality relative to *individual anchors* (see also Farkas 1992). Anchors are the individuals asserting the sentence, or to the main clause subject in case the sentence is embedded. The veridicality inference is now relativized to the individual anchor, specifically, to the anchor’s ‘model’ of evaluation (Giannakidou 1997, 1998, 1999, 2011). These models are sets of worlds, representing what the individual anchor believes or knows.³ We can think of models as ‘modal bases’ associated with individuals, or epistemic states, as I call them below. In main assertions, the default is set to the epistemic space of the speaker. I

³ Individual anchoring of truth should be seen on a par with other kinds of anchoring of propositional content, i.e. temporal anchoring, or event anchoring (e.g. Hacquard 2010). The individual anchor is a subjective parameter of evaluation similar to Lasnik’s (2005) *judge*. The difference between knowledge and belief is not so important for our purposes here, as verbs of knowledge and belief both select the indicative. Belief makes a difference for an agent typically when it is contrasted with knowledge, i.e. when the agent is aware that she doesn’t have enough information to support a proposition. In this case, we can say that we have semantic narrowing (Geurts and van Tiel 2013); see the discussion on epistemic subjunctive later.

proceed now with the definitions, based on Giannakidou 2013, 2014:

(25) Def. 2. *Epistemic state of an individual anchor i*

An epistemic state $M(i)$ is a set of worlds associated with an individual i representing worlds compatible with what i knows or believes.

Given the epistemic state, we can now identify (non)veridicality *subjectively*, i.e. with respect to individual anchor's epistemic state. In Giannakidou 2009, I proposed the following definition:

(26) **Veridicality**

A propositional operator F is veridical iff from the truth of Fp we can infer that p is true according to some individual i (i.e. in some individual i 's epistemic model)" (Giannakidou 2009:1889)

I will rephrase this now as *Subjective Veridicality* as follows:

(27) Def. 3. *Subjective veridicality*

A function F that takes a proposition p as its argument is subjectively veridical with respect to an epistemic state $M(i)$ of an individual anchor i iff:

- (i) Fp entails or presupposes that i knows/believes that p is true.
- (ii) If i knows/believes that p , then i 's epistemic state $M(i)$ is such that: $M(i) \subseteq p$.

From Def. 3, it follows that $\forall w[w \in M(i) \rightarrow w \in \{ w' | p(w') \}]$. Subjectively veridical functions require in their truth conditions homogenous epistemic states, included in p . This is

the state of full commitment. Consider, e.g. an unembedded sentence:

(28) a. O Giannis kerdise to agona.

The John won-3SG the race

‘John won the race.’

b. $[[\text{John won the race}]]^{M(\text{speaker})} = 1$ iff

$\forall w [w \in M(\text{speaker}) \rightarrow w \in \{ w' \mid \text{John won the race in } w' \}]$

If the speaker asserts ‘o Giannis kerdise ton agona’ *John won the race*, she must believe or know that John won the race, hence all worlds in $M(\text{speaker})$ are John-won-the race worlds: $M(\text{speaker}) \subseteq p$. The unmodalized sentence is therefore equivalent to *the speaker knows that p*. The indicative is therefore the mood that conveys homogeneity of a modal space $M(i)$ —and notice that with a negated indicative we also have homogeneity (all worlds are *not p*).

When we think of unmarked past or present as a ‘direct evidential’, we have exactly this veridical (in the case of positive) epistemic state. The simple past or present draws on "direct" evidence in the sense that it represents the more reliable knowledge. In the absence of indirect evidential, all worlds in $M(\text{speaker})$ are p worlds.

Subjective nonveridicality, on the other hand, indicates that i does not know or believe p . The epistemic state now intersects with p , and contains $\neg p$ worlds:

(29) Def. 4. Subjective nonveridicality

A function F that takes a proposition p as its argument is subjectively nonveridical with respect to an individual anchor i iff:

(i) Fp does not entail that i knows or believes that p is true.

- (ii) i 's epistemic state $M(i)$ is such that: $M(i) - p$ is not \emptyset , which means that
- (iii) $\exists w' \in M(i) : \neg p(w')$.

A subjectively nonveridical function imposes non-homogeneity on the epistemic state, since there is at least one *non-p* world. Modals are objectively nonveridical, as mentioned earlier, but also subjectively. A speaker asserting MUST/MAY p allows in her epistemic state *non-p* worlds (see Giannakidou and Mari's paper for more discussion). This is the state of reduced, or 'weakened' epistemic commitment.

Veridicality can be extended to characterize the epistemic states themselves. A veridical epistemic state is a homogenous epistemic state that fully supports p . A nonveridical epistemic state, on the other hand, is partitioned into p and $\neg p$ worlds:

(30) Def. 6. *Veridical, nonveridical epistemic states and commitment*

- a. An epistemic state (a set of worlds) $M(i)$ relative to an individual anchor i is *veridical* with respect to a proposition p iff all worlds in $M(i)$ are p -worlds. (*full commitment to p*).
- b. If there is at least one world in $M(i)$ that is a $\neg p$ world, then $M(i)$ is nonveridical (*weakened commitment to p*).
- c. If all worlds in $M(i)$ are $\neg p$ worlds, then $M(i)$ is antiveridical (*counter-commitment to p*).

A veridical epistemic state is a non-partitioned, homogenous epistemic state, a state of knowledge or belief (full commitment). An individual in a veridical epistemic state has no doubt about p . A nonveridical state, on the other hand, is defined as one that contains at least one $\neg p$ world, it therefore conveys weaker commitment to the proposition than a veridical

state, i.e. only partial commitment at best. All epistemic modals convey nonveridical epistemic states, as do states of indirect evidentials (Giannakidou and Mari 2014, to appear). A speaker asserting MUST/MAY p , allows in her epistemic state *non-p* worlds.

When all the worlds are $\neg p$, the state is *antiveridical*, as with negation and counterfactual assertions, which express *counter-commitment* of the anchor. Antiveridicality characterizes also optative and imperative sentences since in these cases i has no commitment to p . Counter-commitment and weakened commitment are non-commitment to p , though only weakened commitment operators are partitioned into p and *non-p* spaces.

From the epistemic domain, we can move to generalize veridicality and nonveridicality to all kinds of modal spaces (sets of worlds), including various kinds of modal bases. Veridicality and nonveridicality are now properties of modal spaces:

(31) Def. 7. *Veridical, nonveridical modal spaces*

- (i) A set of worlds M is *veridical* with respect to a proposition p iff all worlds in M are p -worlds. (Homogeneity).
- (ii) A set of worlds M is *non veridical* with respect to a proposition p iff there is at least one world in M that is a $\neg p$ world. (Non homogeneity).
- (iii) A set of worlds M is *antiveridical* with respect to a proposition p iff M and p are disjoint.

All modal bases are nonveridical spaces. Condoravdi 2002 imposes a *diversity* condition on modals to produce exactly the same effect.

Bouletic and deontic domains are also non- veridical since they are ordered. Ordering (Kratzer, 1981/1991) always creates a partition, therefore necessarily a nonveridical modal space. The ordering is also responsible for the appearance of ‘strength’ in a nonveridical

domain, and this is something discussed in more detail in Giannakidou and Mari (this volume) in the context of universal epistemic modals. I will not repeat that discussion here, but come back to its main observations in section 4.

3 Mood choice in selection patterns is regulated by (non)veridicality

In this section, I illustrate how veridicality and nonveridicality account for the basic selection pattern, so that we can then discuss the new cases.. In the publications I mentioned earlier (Giannakidou 1994, 1997, 1998, 1999, 2009, 2011), I advocated the view that mood choice is regulated by nonveridicality: indicative verbs are veridical and subjunctive nonveridical. In more recent work, it has been shown that the relevance of (non)veridicality for mood holds in Greek diachronically, in all stages of the language since Homeric Greek (Chatzopoulou 2012). Similarly, Marques 2004 writes that “while in European Portuguese the selection of mood is sensitive to *both veridicality and epistemic modality*, Brazilian Portuguese is becoming a language *where the truth-value of the proposition is the main factor responsible for mood selection*.” Sarigul (2015) shows that nonveridicality is the key factor in selection of comelemetns also in Turkish. In what follows, I will offer the key observations about the basic verb categories, concentrating on Greek.

3.1. The indicative as an indication of a veridical epistemic state

As we said in section 2, main assertions without modals expresses full speaker commitment, and are therefore veridical.

(32) a. John won the race.

b. $[[\text{John won the race}]]^{\text{M}(\text{speaker})} = 1$ iff $\forall w[w \in \text{M}(\text{speaker}) \rightarrow w \in \{ w' | \text{John won}$

the race in w' }]

If the speaker asserts *John won the race*, she is committed (i.e. she knows or believes) that John won the race, hence all worlds in $M(\text{speaker})$ are John-won-the race worlds: $M(\text{speaker}) \subseteq p$. We thus conclude that the ‘unmarked’ indicative is the mood chosen by a speaker when she is in the veridical state. In the case of ‘know’, both speaker and knower are committed to the truth of the embedded proposition:

- (33) [[Nicholas knows that Ariadne left]] = 1
 iff $\forall w [w \in M(\text{Nicholas}) \rightarrow w \in \{w'. \text{Ariadne left in } w'\}]$ and
 $\forall w [w \in M(\text{speaker}) \rightarrow w \in \{w'. \text{Ariadne left in } w'\}]$

With propositional attitudes we have two potential anchors: the speaker, as in the unembedded case, or the main clause subject. Knowledge verbs are veridical with respect to both anchors, and in Giannakidou 1998, 1999 I called them ‘strongly’ veridical. But how about *believe* and *dream*? How are these veridical?

Following classic treatments of belief, for the evaluation of p in *i believes that p*, it must be the case that i , the main clause subject, is committed to p . We have, as with knowledge, two potential anchors: the speaker, and the main clause subject. Unlike with knowledge, the speaker and subject’s *belief* spaces need not coincide: the speaker need not believe that p is true, but the truth condition for belief requires that believer not have *not p* worlds in her belief space. In the example below, Nicholas’s belief space (i.e. the set of worlds compatible with what Nicholas believes) is a subset of p : $M(\text{Nicholas}) \subseteq p$. The speaker may believe or even know that what Nicholas believes is false, but this is irrelevant for Nicholas’s beliefs and mood choice:

(34) O Nicholas pistevi oti efije i Ariadne.
 the Nicholas believe.3SG that-IND left-3SG the Ariadne
 ‘Nicholas believes that Ariadne left.’

(35) a [[Nicholas believes that Ariadne left]] $M(\text{Nicholas}) = 1$
 iff $\forall w [w \in M(\text{Nicholas}) \rightarrow w \in \{w'. \text{Ariadne left in } w'\}]$
 b Veridicality of the belief verb
 If *believe*(*i*,*p*) is true, then $M(i) \subseteq p$

Since all worlds in $M(\text{Nicholas})$ are *p*-worlds, the belief verb is veridical with respect to that model. The complement of belief is not a fact *known*, but a fact *believed* or *imagined* by the agent of the belief.

Now consider dreams:

(36) O Nicholas onireftike oti efije i Ariadne.
 the Nicholas dreamt-3SG that-IND left-3SG the Ariadne
 ‘Nicholas dreamt that Ariadne left.’

(37) [[Nicholas dreamt that Ariadne left]] $M(\text{Nicholas}) = 1$
 iff $\forall w [w \in M(\text{Nicholas}) \rightarrow w \in \{w'. \text{Ariadne left in } w'\}]$

When I dream or imagine something, as a dreamer, I am fully committed to the fictional reality of my dream. Farkas 1985 noted this already: fictional reality replaces the actual one, and we can understand this as a kind of context shift: *dream* shifts the model of evaluation from the model of the speaker to the $M(i)$, where *i* is the dreamer. All worlds in that space are

p worlds, since reality no longer plays a role.⁴ It is interesting to note that indirect evidential marking also disappears in dreams and story-telling (e.g. in Turkish, Ozge Sarigul, pc.). This suggests that the grammar treats fictional contexts as shifted, non-partitioned states where veridicality holds *as if* in the real world. Hence, dream and fiction verbs are subjectively, but not objectively, veridical.

The indicative thus is an indicator of objective and subjective veridicality. We can summarize this as follows:

(38) Indicative as an indicator of *objective* and *subjective veridicality*

The indicative is the indicator of veridical epistemic states, and is selected by expressions that are at least subjectively veridical.

We can view this generalization as a licensing condition on the indicative: the indicative will be licensed only in the scope of an expression that is at least subjectively nonveridical. This formulation renders mood selection akin to polarity licensing (in line with Giannakidou 1998, 2009, Quer 2009), and it is no accident that both polarity items and mood choice are sensitive to the property of (non)veridicality. We can further say that the property of veridicality is lexically represented, for selection at least, as grammatical features on the verbs selecting the mood, and the relation between the higher veridical verb and the indicative is an agreement relation of veridical features (see also Ambar this volume; Baunaz 2014 offers a different approach, still based on feature matching between the verb and complementizer features). I will offer a parallel account for the subjunctive next.

3.2 The subjunctive as an indicator of non-veridicality

⁴ One can have moments of awareness that ‘shift’ her back to reality—as is the case, for instance, of being aware that one is dreaming (thanks to Oliver Bott for raising this possibility). We must say, however, that these moments are excluded probably via some generalized domain restriction mechanism or narrowing.

The subjunctive follows verbs that come with partitioned, nonveridical spaces. These contain p and $not-p$ worlds. The partition can be created by an ordering. Take *want* verbs as a representative case. The truth condition for *thelo* ‘want’ only requires that the intersection between $M(\text{subject})$ and p be nonempty. In addition, the volitional verb imposes an ordering indicated below as $>_{\text{more desirable}}$ such that the worlds in which p is true are more desirable than the worlds in which p is not true.

- (39) $[[\text{Nicholas wants that Ariadne leave}]]^{M(\text{Nicholas})} = 1$ iff
- i. $\{w \mid w \in M(\text{Nicholas})\} \cap \{w' \mid \text{Ariadne leave in } w'\}$ is not \emptyset , and
 - ii. $\{w \mid w \in M(\text{Nicholas}) \cap p\} >_{\text{more desirable}} \{w' \mid w' \in M(\text{Nicholas}) - p\}$

If i *wants* p , not all worlds in $M(i)$ are p -worlds. In fact, the ‘wanter’ considers both possibilities, p and $non-p$ worlds, and prefers the former. This places nonveridicality at the heart of the truth condition for desire. If i *wants* p , in the doxastic model of i there are p and $non-p$ worlds, as indicated above. It is easy to see how this picture generalizes to other directive verbs such as “ask”, “suggest”, “order”:

- (40) $[[\text{Nicholas asked Ariadne to leave}]]^{M(\text{Nicholas})} = 1$ iff
- i. $\{w \mid w \in M(\text{Nicholas})\} \cap \{w' \mid \text{Ariadne leave in } w'\}$ is not \emptyset , and
 - ii. $\{w \mid w \in M(\text{Nicholas}) \cap p\} >_{\text{more desirable}} \{w \mid w \in M(\text{Nicholas}) - p\}$

- (41) $[[\text{Nicholas suggested that Ariadne leave}]]^{M(\text{Nicholas})} = 1$ iff
- i. $\{w \mid w \in M(\text{Nicholas})\} \cap \{w' \mid \text{Ariadne leave in } w'\}$ is not \emptyset , and
 - ii. $\{w \mid w \in M(\text{Nicholas}) \cap p\} >_{\text{more desirable}} \{w' \mid w' \in M(\text{Nicholas}) - p\}$

This analysis is faithful in spirit to Heim’s treatment of desire reports (Heim 1992). Heim poses that *a wants p* is true if John prefers *p* to *not p*, as can be seen in her definition below:

(42) [Heim 1992: 193]

“ α wants that ϕ ’ is true in w_0 iff for every $w \in \text{Dox}(\alpha)(w_0)$:

every ϕ -world maximally similar to w is more desirable to α in w_0 than any non- ϕ world maximally similar to w .”

$\text{Dox}(\alpha)(w)$ is the accessibility function giving doxastic alternatives for α , $M(i)$ in our case.

The opposition between *p* and *not p* is crucial in creating nonveridicality in $\text{Dox}(\alpha)(w)$.

The semantics of modal verbs follow the same pattern, see Giannakidou 1998 (chapter 3), and Giannakidou and Mari 2014 (this volume) for epistemic modals: the modal base (MB) is part of $M(i)$. With necessity modals it is not the case that $M(i) \subset p$, and it is not the case that $\text{MB} \subset p$, as only the Best (Portner 2009) worlds intersect with *p*.

(43) [[**prepi**/ MUST]] $w, f, g = \lambda q \langle st \rangle . \forall w' \in \text{Best}_{g(w)}(\cap f(w)) : q(w') = 1$;

where $\text{Best}_g(w)(X)$ selects the most ideal worlds, given the ordering given by $g(w)$

Thus, a universal modal, irrespective of the kind of ordering, comes with a partitioned, therefore veridical modal base, and it also comes with a partitioned $M(\text{speaker})$. It is quite obvious that the same holds for the possibility modal:

(44) [[**bori**/ can]] $w, f, g = \lambda q \langle st \rangle . \cap f(w) \cap q(w') \text{ is not } \emptyset$.

$(\cap f(w))$ is a nonveridical space. The possibility modal does not induce ordering and creates relatively weak statements. I will argue in section 4 that there is a species of epistemic subjunctive in Greek that functions exactly as a possibility modal. Importantly, the subjunctive with possibility modals, and the ability of the subjunctive itself to serve as such, indicate that ordering or preference are *not* the crucial factor, but nonveridicality.

Villalta 2008, in her treatment of Spanish subjunctive, replaces the nonveridicality opposition between p and *not p*, with a preference relation between p and contextually given q .

(45) Semantics of *want* based on comparison of alternatives (Villalta 2008)

$[[want_C]]^g(p)(a)(w) = 1$ iff

$\forall q: q \neq p \ \& \ q \in \ g(C): \text{Sim}_{w'}(\text{Dox}_a(w) \cap p) >_{a,w} \text{Sim}_{w'}(\text{Dox}_a(w) \cap q)$

This move, apart from being unmotivated (since, among others q entails *not p* if p is not identical to q), loses the insight of p versus *non-p* which is a very useful one, not just for mood, but also for the licensing of negative polarity items (NPIs), as I have shown in earlier work (Giannakidou 1998). Nonveridicality is also placed at the heart of modality (Giannakidou 1998, Giannakidou and Mari this volume; recall Condoravdi's 2002 *diversity* presupposition of modals that requires p and *non-p* in all modal bases). Hence, nonveridicality allows us to unify mood selection, NPI licensing, and modality— and by giving it up as Villalta does, we lose this broader generalization.

We can summarize below the condition for subjunctive:

(46) Subjunctive as an indicator of *nonveridicality*

- (i) The subjunctive is an indicator of a nonveridical epistemic state or modal base, and is selected by expressions that are at least subjectively nonveridical.
- (ii) Subjunctive sentences indicate *epistemic weakening*.

Given what we said so far, it seems obvious that epistemic weakening is the creation of a nonveridical modal space, see below (following Giannakidou 2014):

(47) *Epistemic weakening*

Epistemic weakening is the creation of a *nonveridical epistemic* space.

If the subjunctive contributes a nonveridical space, then the relation between the higher selecting verb and the subjunctive is one of agreement, or matching—as I suggested earlier about the indicative. If the veridicality properties of the verbs are encoded as syntactic features, selection can be understood as veridical (indicative) or nonveridical (subjunctive) agreement. Semantically, the subjunctive in selection is thus vacuous⁵; for more ideas about how to capture the syntactic dependency in the nonveridical framework see Ambar this volume.

4 Epistemic subjunctive: a possibility modal

I start with an observation made for Portuguese. Marques 2010 notes that in Portuguese, belief and assumption verbs such as *suspect*, *assume* may occasionally allow the subjunctive:

⁵ Notice that in Villalta's account too the selected subjunctive has no semantics; it is merely an identity function, as indicated in Villalta's (111): [[SUBJ IP]] = [[IP]]. Therefore, despite an initial claim that a semantics for the subjunctive will be given, Villalta in fact does *not* give a semantics for the subjunctive.

- (48) a Acredito que a Maria está doente.
 Believe-1SG that the Maria is-IND-3SG ill
- b Acredito que a Maria esteja doente.
 believe.1SG that the Maria is.SUBJ.3SG ill
- ‘I believe that Maria is ill.’

Notice the first person, neutralizing the difference between speaker and believer. Marques says that “the selection of one or another mood is related to the degree of belief being expressed. *The indicative signals a high degree of belief, the subjunctive a lower degree.* ... The concept of veridicality accounts for this case of mood variation. With the indicative, the inference follows that the relevant proposition is true (according to the subject of the main clause), contrary to what happens if the subjunctive is selected.” (Marques 2010, p. 145).

In other words, when the speaker chooses to utter the subjunctive version, she is making a point to distinguish between what she believes and what she knows for sure. When she chooses the indicative version, the speaker is in a veridical state and the belief is justified (“higher degree of certainty”), but when she chooses the subjunctive, she seems to be aware that her belief might not be justified. The speaker, in the subjunctive version, has some uncertainty in her epistemic state and her commitment to *Maria is ill* is weaker, i.e. she allows for the possibility of *not p*.

The presence of subjunctive after first person belief indicates precisely this veridicality weakening. This is strikingly similar to what happens when we add a modal verb in the embedded clause:

- (49) a I believe that Maria *might* be sick.
- b I believe that Maria *is* sick.

In contrast to the unmodalized versions, commitment to the truth of embedded sentence is weakened by adding *might*. The use of the subjunctive, I will claim, is exactly like adding *might*. I define a new species of subjunctive, epistemic subjunctive, which is akin to a possibility modal:

(50) [[**Epistemic Subjunctive**]]^{w,f,g} = $\lambda q \langle st \rangle . \cap f(w) \cap q(w')$ is not \emptyset ;

$(\cap f(w))$ is a nonveridical epistemic modal base because not all worlds are *p* worlds. The possibility modal does not induce ordering and creates relatively weak statements. I will speculate that the Portuguese subjunctive in Marques' examples is of that kind, and will provide evidence below that Greek makes extensive use of epistemic subjunctive. It is a matter of crosslinguistic variation whether a language has or not this type of subjunctive.

Before we move on the specifics of Greek, I wanted to clarify that in terms of commitment/epistemic weakening, we have a scale of commitment strength that goes as follows, from strongest to weakest (Giannakidou and Mari, this volume):

(51) Commitment strength (\gg is 'more committed')

Non-modalized *p* (speaker knows *p*, added to the common ground) \gg

MUST *p* (speaker does not know *p*, but is *biased* towards *p*) \gg

POSSIBLY *p* (speaker does not know *p*, and there is no bias)

When all worlds in *M* are *p* worlds, we have veridicality, and this conveys the strongest commitment. With MUST, not have a nonveridical space with *bias* towards the *p* worlds since these are best (Giannakidou and Mari 2013, this volume). Stronger modals such as

MUST and the FUT are characterized as *biased* modals in Giannakidou and Mari (this volume) and they are stronger in terms of commitment than possibility modals. With biased modals there is a non-singleton support set of *p*, but the modal base and M(speaker) still allow *non-p* worlds (nonveridicality). The possibility sentence, on the other hand, conveys *equilibrium* between *p* and *non-p* (Giannakidou 2013, Giannakidou and Mari 2014, this volume), i.e. there is no preference towards the *p* or *non-p* worlds. In this case we have the weakest commitment, and the epistemic subjunctive is a modal of that kind.

We have substantial evidence in Greek that the epistemic subjunctive is a possibility modal. Often, the subjunctive appears with possibility adverbs (Giannakidou 2009):

- (52) Isos/pithanon (na) efije o Nicholas.
 Maybe/possibly SUBJV left-3SG the Nicholas
 ‘Maybe Nicholas left.’

Na, crucially, is incompatible with modals of probability and necessity. In this case, the future particle *tha* is used (Giannakidou 2012, Giannakidou and Mari 2013, this volume).

- (53) * Malon/Sigoura *na* kimate o Nicholas.
 Probably/certainly SUBJV sleep-3SG the Nicholas
- (54) Malon/Sigoura *tha* kimate o Nicholas.
 Probably/certainly FUT sleep-3SG the Nicholas
 ‘Probably/Certainly Nicholas is asleep.’

The FUT sentence is equivalent to MUST. Given the availability of *tha*, and the ill-formedness of *na* with stronger adverbs, the truth conditions of the subjunctive sentence must

be delegated to possibility. Both types of sentences (with *na* and *tha*) are epistemically weaker than the unmodalized positive assertion. But the future particle is a universal modal, whereas the subjunctive is an existential. Greek thus has two strategies for commitment weakening with the particles, i.e. a stronger one with the universal modals and a weaker one with the subjunctive.

When co-occurring, *na* and the possibility adverbs *isos*, *pithanon* enter modal concord (see Huitink 2012 for a discussion of modal concord), thus the reading of the sentence contains one possibility modal. Similar examples can be reproduced with the present tense:

(55) Isos/pithanon (na) kimate o Nicholas.
 Maybe/possibly SUBJV sleep-3SG the Nicholas
 ‘Maybe/Possibly Nicholas is asleep.’

(56) ◇ (Nicholas is asleep at the present time)

We can now view our initial data with questions under this light: when a subjunctive is added to a question, it adds *might*.

(57) Pjos irthe sto party?
 Who came-3SG to the party
 ‘Who came to the party?’

(58) Ti **na** ipe?
 What SUBJV said.3SG
 ‘What might he have said?’

(59) Pjos **na** irthe sto party?
 Who SUBJV came-3SG to the party

‘Who might have come to the party?’

(60) **Na** tou milise (arage)? Polar questions

SUBJV him talked-3SG Q-particle

‘Might she have talked to him?’

(61) **Tou** milise?

him talked-3SG

‘Did she talk to him?’

Here the speaker asks the hearer about the *possibility* of *p* rather than *p* itself. The subjunctive has a similar use in Salish, as reported in Matthewson 2010, where it is said that such questions are ‘conjunctural’. Mathewson argues for an overall weakening effect of the subjunctive, very much in the spirit outlined here. The *na/might* question, as can be seen, is about questioning the possibility that *p* rather than *p* itself.

The German so-called modal particles are reported to similar use (the example is from Zimmermann 2011 with his translation):

(62) Hat Hans wohl Maria eingeladen?

has Hans prt Mary invited

‘What do you reckon: Has Hans invited Mary?’

Zimmerman says: “The question above is not about whether or not Hans has invited Mary, but by using *wohl* the speaker indicates her awareness that the addressee may not be fully committed to her answer.” (Zimmermann 2011, p. 2020). In agreement with what I just said about Greek (and see Matthewson for Salish), modal particles create a question that does not require a factual answer.

Given the meaning I am suggesting of epistemic subjunctive as *might*, questions with the subjunctive are equivalent, literally, to the translated questions containing *might*.

(63) *na* = might

(64) Who might have come to the party?

Without *na*, we have a regular information question, with the set of answers below:

(65) [[Who came to the party?]] = {Bill came to the party, Marina came to the party, Ariadne came to the party, Nicholas came to the party,...}

With the *might* question, the answer set is the following:

(66) [[Who might have come to the party?]] = {◇ Bill came to the party, ◇ Marina came to the party, ◇ Ariadne came to the party, ◇ Nicholas came to the party,...}

The answer set contains modalized propositions about who *possibly* came to the party, and it doesn't tell us much about who *actually* came to the party. In further support of this analysis, consider the following pair:

(67) Poso xrono *na ine* o Agios Vasilis?

How old might Santa Clause be?

It is rather bizarre, for an adult, to ask the question without the subjunctive:

(68) # Poso xrono ine o Agios Vasilis?

How old is Santa?

The oddity comes from the fact that the non-subjunctive question presumes that the answerer will give an actual answer— and unless you are a child and you believe in Santa Clause, an actual answer to this question is not possible.

In sum, I defined in this section a new species of subjunctive that I called *epistemic*. This subjunctive is equivalent to *might*, its evaluative function is to weaken the veridicality of the sentences. Languages may differ with respect to whether they allow their subjunctives to function this way. The Greek *na*, and as I suggested the Portuguese subjunctive too have systematic use as epistemic subjunctives..

I proceed now to examine the *emotive* subjunctive.

5 Emotive subjunctive: nonveridicality in the pragmatic dimension

The species I identify as ‘emotive subjunctive’ occurs after emotive factive verbs in some Romance languages, and it is also manifested in first person belief alternations and dual mood patterns observed with the verb meaning *hope*. I will argue that in this case, the subjunctive again functions modally, but this time not as a modal in the assertion, but at the level of presupposition: consistent with its use as a possibility epistemic modal, the emotive subjunctive introduces the presupposition that *the individual anchor considered not possible, at a time prior to the assertion*. Thus in this case too, the subjunctive is an indicator of a nonveridical epistemic state, but prior to the assertion. Finally, we contrast the emotive subjunctive with the emotive Greek complementizer *pu*, which, I argue, contributes negativity in the expressive dimension.

5.1 The subjunctive with emotive verbs

Let me start with our earlier observation that factive verbs (*know*) are veridical; emotive factives should therefore not select the subjunctive. This is indeed the case with epistemic factives *know*, as we saw. But regarding emotive verbs, there are three patterns:

- (i) Languages that require subjunctive (Spanish, Italian, maybe French);
- (ii) Languages that allow both subjunctive and indicative ((Brazilian) Portuguese, Catalan, Turkish);
- (iii) Languages where emotives select indicative (Greek, Hungarian, Romanian, Bulgarian); the emotive complement may be distinguished in some other way.

Given this variation, it becomes clear that, crosslinguistically, the emotive class is not a typical selection context. From the nonveridicality perspective, emotives should simply not allow the subjunctive since they are factive and therefore veridical, hence the languages in (iii) are well-behaved. But we still need to explain the option of subjunctive in types (i-ii), and why there is a special marking with the emotive verb in Greek. We will see that we although we may deny the factive nature of the emotives, we cannot deny their veridical nature (I wanted to thank Johan Rooryck and Paul Egré for discussing this question with me).

Huddleston and Pullum 2002, call emotives *not entailing*, and give examples like below:

- (69) Falsely believing that he had inflicted a fatal wound, Oedipus regretted killing the stranger on the road to Thebes (Klein 1975, quoted in Gazdar 1979, p. 122).

Here, it is not entailed (i.e. it is not true in the actual world) that Oedipus inflicted a fatal wound. Egré 2008 offers similar examples:

- (70) John wrongly believes that Mary got married, and he regrets that she is no longer unmarried. (Egré 2008: (30), citing earlier work by Egré and Schlenker).

These examples show that one can have an emotive attitude towards something that one *believes* to be a fact, but may not *actually* be a fact. In the normal case, we are happy or sad about something that we know happened; but one may *believe* that something happened (a *believed* fact) and then feel happy or sad about it. Hence, emotive verbs need not be veridical in the objective sense (as *know* is) but subjectively, since emotive verbs still rely on the emotive subject's belief of *p*. This renders them subjectively veridical, just like *belief* and fiction verbs. But these verbs, as we saw in section 3, select indicative. Why, then, are emotives compatible with the subjunctive?

Baker (1970) suggested that emotives express a negativity, a “contrariness” between a perceived fact and *some mental or emotional state*. According to Baker, we say that we are *surprised* when a certain fact does *not* conform to our expectations; *relieved* when it does not conform to our fears; *disappointed* when it is not in line with our hopes. Likewise, we say that a certain fact is *odd* or *strange* if it seems counter to our view of what is logical. Emotives, as a class, convey this “contrary” component, via which they can also trigger NPIs, something that veridical verbs normally do *not* do:

- (71) a *Ariadne believes/dreams that she talked to anybody.
 b *Ariadne knows that she talked to anybody.
 c Ariadne regrets that she talked to anybody.

d Ariadne is amazed that we got any tickets at all!

Very much in agreement with Baker (and later Linebarger 1980), I argued in Giannakidou 1997 and 2006 that the appearance of NPIs with emotive verbs is due to accessing, in the *pragmatics* of the emotive verb, a negative inference. Here I want to build on this idea, by elaborating on Giannakidou 2006. I suggested that the component of emotives responsible for voiding veridicality is a counterfactual conditional:

(72) John regrets that I bought a car. → John would prefer it if I had not bought a car.

The nonveridical proposition with *regret* is a counterfactual conditional with a negative protasis, and is non-cancelable:

(73) John regrets that I bought a car; #in fact he wouldn't want me to buy a car.

Negating *John would want me to buy a car* creates oddity, suggesting that this inference is “not merely a conversational implicature, as argued in Linebarger, but rather something stronger, *perhaps a presupposition* or a conventional implicature in the sense of Potts (2005). In fact, since emotive factives convey an expressive attitude toward the propositional content of their complement, it makes sense to argue that they *all encode conventionally this attitude* [emphasis not in the original].” (Giannakidou 2006, p. 595).

Here I will argue that the negative component is a presupposition: the main clause subject has a belief or expectation that *not p* was true prior to the assertion. It is because of this presupposition that we get the perceived contrariness, and it is this proposition that the NPI accesses to be triggered:

(74) *Negative presupposition of emotive verbs*

- i. $[[i V_{\text{emotive}} p]]$ is defined only if *i believed or expected that not p*, at a time $t' < t_u$ (the utterance time).
- ii. At $t' < t_u$: $\forall w [w \in M(i)(t') \rightarrow \exists \lambda w'. \neg p(w')]$
- iii. If defined, $[[i V_{\text{emotive}} p]]$ $M(i) = 1$ iff $\forall w [w \in M(i)(t_u) \rightarrow \exists \lambda w'. p(w')]$

In other words, *Nicholas is surprised that Ariadne talked to him* can only be felicitous in a context where, prior to the utterance, Nicholas believed that *Ariadne would not talk to him*. This is what it means to be surprised. Likewise, if *Ariadne is amazed that we got any tickets at all* Ariadne must have believed that *we would not get any tickets at all*; hence the NPI. If *Ariadne regrets that she talked to anybody*, then prior to the assertion she preferred not to talk to anybody. The availability of this negative presupposition is crucial to the lexical meaning of the emotive verb and is responsible for rescuing the NPI and for licensing the subjunctive. The subjunctive after the emotive verb is thus also an NPI, licensed by the emotive verb:

- (75) $[[\text{SUBJ}_{\text{emotive}}(p)]]$ is defined iff: there was a time $t' < t_u$ (the utterance time) such that the main clause subject *i believed or expected that not p at t'*.

$\text{SUBJ}_{\text{emotive}}$ does not affect the truth conditions of the complement, but contributes a nonveridical presupposition. The subjunctive appears to be sensitive to the presupposition, just like NPIs can be sensitive to assertion or presupposition. From this perspective, the subjunctive after emotives strengthens the connection between NPIs and mood morphemes.

As with epistemic subjunctive, languages will parametrize as to whether they possess

the emotive subjunctive or not. Spanish and Italian have it, but Greek and the languages of type (ii) do not. Languages of type (ii) that optionally allow the subjunctive also have it. This analysis, and especially the reference to a previous epistemic state, echoes earlier observations in my treatment of the implicative *manage*. In order to explain why *manage p* selects the subjunctive, despite its veridical inference (*i managed p* entails *p*), I suggested that belief states must be relativized to times (Giannakidou 2011).

In a recent paper, Mari 2014 argues that the *possibility of not p* must be part of what she calls ‘extended modal base’ of ability modals. This extended modal base is required to be nonveridical (like all modals), therefore by presupposition it must contain *non-p worlds*. This helps Mari explain actuality entailments with ability modals (*Last night, John was able to drink 10 beers*) while preserving the nonveridical analysis of ability (*CAN (John drink 10 beer)*) does not entail that *John drink 10 beers* is true). These are very useful observations that relate to the discussion of emotives. However, the presupposition of emotivity is stronger than *i simply believing that it was possible that not p*. If the attitude holder considered it merely possible that *not p*, he would be in equilibrium with *not p*, which would not justify the contrariness observed. Notice also that, importantly, Greek NPIs are *not* licensed by the negative presupposition, therefore the fact that the Greek subjunctive is not licensed in this context is consistent with its analysis as an NPI that I am suggesting. The Greek subjunctive *is* selected (in fact, strictly selected) by Greek *manage*, while NPIs are blocked;(Giannakidou 1998). The contrast clearly suggests that the analysis of negativity in implicatives and emotives cannot be the same.

5.3 Greek emotive complementizer *pu*

In Greek, recall that we do not have the emotive subjunctive, but a special complementizer, *pu*:

- (76) O Nicholas lipate/xerete **pu/*na/*oti** efije i Ariadne.
the Nicholas is-sad-3SG /is happy-3SG that-EMOTIVE left-3SG the Ariadne
‘Nicholas regrets/is happy that Ariadne left.’
- (77) O Nicholas kseri **oti/*pu** efije i Ariadne.
‘Nicholas knows that Ariadne left.’

I will argue that *pu* carries expressive content, in line with other expressive complementizers that we know Greek possess, i.e. the metalinguistic comparative complementizer *para* (Giannakidou and Stavrou 2009, Giannakidou and Yoon 2011).

According to Potts 2007, “an expressive indicates that the speaker is in a heightened emotional state, and offers a suitable framework to understand the class of emotive verbs altogether. To formalize the claim, Potts uses expressive indices:

(78) An expressive index is a triple $\langle a \mathbf{I} b \rangle$, where $a, b \in De$ and $\mathbf{I} \in [-1, 1]$.

Expressive indices are the foundation for expressive domains, and are contained in expressives such as *damn*, *bastard*, *etc.* These indices encode the degree of expressivity and the orientation of the expressive, and they are defined via numerical intervals $\mathbf{I} \subseteq [-1, 1]$. We can read $\langle a \mathbf{I} b \rangle$ as conveying that individual *a* is at expressive level \mathbf{I} for an individual *b*. Mapping emotional attitude onto expressive intervals has the advantage of allowing flexibility from very neutral (if $\mathbf{I} = [-1, 1]$)—in Potts’ words, “*a* has no feelings for *b*”—to very negative ones. Emotive relations emerge as we narrow down \mathbf{I} to proper subintervals of $[-1, 1]$; the more positive the numbers, the more positive the expressive relationship, and conversely.

In Giannakidou and Yoon 2011, it is suggested that individuals can have emotion about *propositions*. The motivating data were expressive metalinguistic comparatives such as *I'd rather die than marry him!* In Korean and Greek, these involve special complementizers, *nuni*, *para*—though English simply has *than*. We can now say that the class of V_{emotive} contains expressive indices:

(79) *Emotive verbs* contain expressive indices

An emotive verb contains an expressive index $\langle a \mathbf{I} q \rangle$, where a is the individual anchor, q the proposition it embeds; and \mathbf{I} ranges between $[-1, 1]$.

The expressive index is a contribution of V_{emotive} at the non-at issue level. These indices can have morphosyntactic realization, and may actually trigger agreement. It is not uncommon for expressives to do that, e.g. Potts and Kawahara 2004 claim this for honorific agreement. I will claim that the relation between V_{emotive} and *pu* is expressive agreement; the emotive verb carries a morphosyntactic feature *+expressive*, and selects a C that agrees with this feature.

If this sounds like a reasonable analysis, then one can claim a parallel analysis for the emotive with the subjunctive: the emotive has a morphosyntactic expressive feature like Greek, and selects the subjunctive as an agreeing form. Greek opts for the C position because this is a productive strategy in the language. Romance languages typically do *not* exploit the C position (though perhaps they do covertly; see Baunaz 2015); expressive agreement targets the next available head: Mood. Languages vary as to whether they have the lexical items ‘emotive subjunctive’ or ‘emotive C’. Languages in the Romance family (group i) have emotive subjunctive; languages of group (iii) have emotive C. Languages in the middle group ii are in transition—either developing or discontinuing the emotive subjunctive (Portuguese, Turkish).

These ideas are quite new, and certainly more detailed study is needed. I wanted to offer here a framework useful for addressing the crosslinguistic variation observed with the emotives. We proceed next to dual mood patterns, which reveal a third function of evaluative subjunctive.

6 The subjunctive as preference ordering

Recall our initial examples from Greek.

- (80) Pistevo na kerdisi o Janis.
 Believe-1SG that-SUBJV win-PRF-NONPST-3SG the John
 ‘I *hope* John to win.’

As indicated, the verb *pistevo* is not interpreted as a verb of belief, but it seems to be akin to ‘hope’. Notice also the importance of first person:

- (81) * I Maria pistevi na kerdisi o Janis.
 The Maria believe-3SG that-SUBJV win.PRF-NONPST-3SG the John

In the third person, *na* is impossible. The sensitivity to first person suggests that the use of *na* is tied to the speaker, it is therefore distinct from the emotive subjunctive which concerns the main clause subject. This subjunctive cannot be of the epistemic kind either since epistemic subjunctive does not affect the meaning of the attitude; there is a contrast between (80) with the subjunctive, and the sentence below with indicative and a possibility modal:

- (82) Pistevo oti *bori na* kerdisi o Janis.

Believe-1SG that-IND is-possible-3SG. win.PRF-NONPST-3SG the John

‘I believe that it is possible for John to win.’

Here, with the indicative and an embedded epistemic modal, we have the assertion of the speaker’s belief that it is possible for John to win. This is a very different meaning from (80), where the verb meaning appears to be affected and we no longer have a belief. Given the similarity with ‘hope’, it seems reasonable to assume that in this case the subjunctive introduces a *preference* ordering that (a) creates a nonveridical partitioning in the speaker’s epistemic state by introducing worlds in which John does not win, and (b) says that the worlds where John wins are preferred over the worlds where John doesn’t win.

(83) $[[\text{Pistevo na kerdisi o Janis}]]^{M(\text{speaker})} = 1$ iff

- i. $\neg \forall w' [w' \in M(\text{speaker}) \rightarrow \text{John wins at } w']$ and
- ii. $\{w \mid w \in (M(\text{speaker}) \cap p)\} >_{\text{more desirable}} \{w' \mid w' \in (M(\text{speaker}) - p)\}$

(84) $[[\text{SUBJ}_{\text{preference}}]] = \lambda p. p$ is more desirable to the speaker than $\neg p$.

The belief verb is interpreted as akin to ‘hope’. The $\text{SUBJ}_{\text{preference}}$ has a different meaning from the emotive subjunctive we defined earlier— and which, as I argued, Greek lacks. The subjunctive of preference gives the preference in the assertion, thereby necessitating *non-p* worlds at the time of the assertion. This results in the change of the meaning of the verb. With the emotive subjunctive the *non-p* worlds were entertained at the time *prior* to the assertion— but at the assertion, the complement of the emotive verb is taken to be a fact (actual or perceived).

I suggest that the subjunctive of preference is also at work with the verb meaning *hope* itself:

(85) Elpizo na kerdisi o Janis.
 Hope-1SG that-SUBJV win-PRF-NONPST-3SG the John
 ‘I hope for John to win.’

(86) Elpizo oti tha kerdisi o Janis.
 Hope-1SG that-IND FUT win. PERF.NONPAST.3SG the John
 ‘I hope that John will win.’

Hope counterparts are flexible in European languages (e.g. French, see Portner and Rubinstein 2012), and we observe here that English allows infinitival and *that* complements with *hope*. The dual mood patterns correlate again with change in the verb meaning. I will argue that the subjunctive we find with *hope* is the subjunctive of preference. The meaning is parallel to what I indicated earlier with first person belief:

(87) [[Elpizo **na** kerdisi o Janis]]^{M(speaker)} = 1 iff
 i. $\neg \forall w' [w' \in M(\text{speaker}) \rightarrow \text{John wins at } w']$
 ii. $\{w \mid w \in (M(\text{speaker}) \cap p)\} >_{\text{more desirable}} \{w' \mid w' \in (M(\text{speaker}) - p)\}$

(88) [[Elpizo **oti tha** kerdisi o Janis]]^{M(speaker)} = 1 iff
 $\forall w' [w' \in M(\text{speaker}) \rightarrow \exists t [t_u < t \ \& \ \text{John wins at } t \text{ at } w']]$

The indicative complement with the future is, as we see, a stronger statement—and though the truth conditions designated above may be a bit too strong, the indicative expresses

certainly about the existence of winning times.

In closing, I wanted to mention some more data that can be understood to follow from linking the mood choice to the change of meaning in the verb. Quer observes that with a choice between indicative and subjunctive, a mixed assertive-emotive verb ‘loses’ its assertive meaning with the subjunctive: “When indicative is an option, the predicate yields an assertive reading which is absent with a subjunctive argument clause” (Quer 2001, p. 106-107):

(89) Es queixava que li posessin males notes.

REFL complain-IMPRF-3SG that her/him put-SUBJV-IMPRF-3PL bad marks

‘S/he complained that (subjunctive) they gave her/him bad grades.’

(90) Es queixava que li posaven males notes.

REFL complain-IMPRF-3SG that her/him put-IND-IMPRF-3PL bad marks

‘S/he complained that(indicative) they gave her/him bad grades.’

The effect is lost in English, but is visible in Greek with the complementizer. Now we have alternation between *oti* and *pu*:

(91) a O Janis paraponethike **oti** ton ksexasa.

The John complained-3SG that-IND him forgot-1SG

‘John complained that I forgot him.’

b O Janis paraponethike **pu** ton ksexasa.

The John complained-3SG that-EMOTIVE him forgot-1SG

‘John complained that I forgot him.’

While the *oti*-version asserts that I forgot him, and this proposition can be negated, the *pu*-version cannot be negated:

- (92) a. O Janis paraponethike **oti** ton ksexasa; ala kani lathos: dhen ton ksexasa.
‘John complained that I forgot him; but he is wrong, because I didn’t.’
- b. O Janis paraponethike **pu** ton ksexasa; # ala kani lathos: dhen ton ksexasa.
‘John complained that I forgot him; but he is wrong, because I didn’t.’

This supports the non-assertive analysis of *pu* I suggested, since expressive content cannot be negated. The *pu*-version is emotive: in choosing it I, the speaker, bring in my perspective and feel bad about forgetting John. This speaker orientation is characteristic of expressives as a class, and the fact that we find it with *pu* is encouraging for the approach I suggest here. We find this in the pair e.g. with *remember*, as observed in this pair from Christidis (1981):

- (93) a Thimithika **oti** ton sinandisa sto Parisi.
I remembered that I met him Paris.
- b Thimithika **pu** ton sinandisa sto Parisi.
I remembered (as-if-I-were-there) that I met him Paris.

The *pu* version brings about an emotive reading in *thimithika* ‘remember’.

Overall, I think that opening the discussion of the interaction of verbal meaning and mood choice gives a useful perspective within which to handle the otherwise mysterious occurrence of complementizer and mood switches that have been known in the literature for quite a while. Another work that addresses some flexible patterns (in Romance) is Portner and Rubinstein that I mentioned earlier, and though I was not able to address it in detail here,

there is considerable common ground between their ideas and the analysis of the subjunctive I defended here, in particular with their notion of *contextual commitment*

7 Conclusion: subjunctive, evaluation, categories

In this paper, I made the claim that the rich landscape of subjunctives crosslinguistically becomes indeed quite manageable if we acknowledge two factors. The first is sensitivity of the subjunctive to the property of nonveridicality (objective, with reference to the actual world, or subjective with reference to an individual's knowledge or beliefs). The second factor is the evaluative function of the subjunctive. Evaluative subjunctive, in fact, manifests itself in three functions identified here are *epistemic*, *emotive*, and *preference* subjunctive. Evaluative subjunctive, in all cases, creates a nonveridical space i.e. a modal space partitioned into *p* and *not p* worlds. Evaluative subjunctive, therefore, is itself a nonveridical expression, unlike strictly selected subjunctive which depends on the existence of a nonveridical licenser higher up and does not contribute much in the truth conditions.

The connection between nonveridicality and evaluation is insightfully discussed also in the recent work of Trnavač and Taboada (2012, and their 2013 volume), and the subjunctive in relative clauses that I defended recently in Giannakidou 2013a, where I argued that the epistemic subjunctive is an epistemic possibility modal in relative clauses. The preference subjunctive is an ordering, otherwise typically given by preference/bouletic attitude verbs.

That a particle takes up functions of modals and verbs is not an unexpected finding, especially for Greek—a language where the future particle also functions as an epistemic modal (Giannakidou 2012, Giannakidou and Mari this volume). We must conclude therefore that the question of the morphosyntactic category of an item is distinct from the question of its semantics, and this is not a novel conclusion (see Roussou and Tsangalidis 2010).

Particles, like the Greek subjunctive and the future, and modal particles in Dutch and German, can perfectly well perform modal or evidential functions that are otherwise attributed to modal verbs or adverbs.

In the large scheme of things, the two important lessons to extract from the work I presented here are (a) that the categories ‘particle’, ‘modal verb’, ‘attitude verb’ are just labels, and that linguistic items form notional categories crosslinguistically based on their meaning, and (b) that with the subjunctive, nonveridicality seems to be a decisive component in the meaning, in both strict selection and choice.

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